Before the

Federal Communications Commission

Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Parts 21 and 74 to	)	
Enhance The Ability of Multipoint	)	RM-9060
Distribution Service And Instructional	)	
Fixed Television Fixed Service	)	
Licensees To Engage in Fixed Two-Way	)	
Transmissions	)	
	)	

To: The Commission

COMMENTS OF THE PACE TELECOMMUNICATIONS CONSORTIUM

The PACE Telecommunications Consortium (PACE), through its attorneys, hereby submits these comments on the Petition for Rulemaking filed on March 14, 1997 by a group of participants in the wireless cable industry (*Petition*).[1/] PACE supports the goal of the *Petition* -- to afford ITFS and MDS licensees the flexibility to deploy two-way interactive video and information services through the use of spectrally efficient digital transmission techniques. Indeed, PACE filed a request for special temporary authorization for a two-way, wide-area digital wireless network using ITFS frequencies over a year ago,[2/] and has faced many

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[1/] *See Pleading Cycle Established for Comments on Petition for Rulemaking to Amend Parts 21 and 74 of the Commission's Rules to Enhance the Ability of Multipoint Distribution Service and Instructional Television Fixed Service Licensees to Engage in Fixed Two-Way Transmissions*, Public Notice, DA 97-637 (rel. Mar. 31, 1997). The Commission subsequently extended the deadline for comments on the *Petition* to May 14, 1997. Public Notice, RM-9060 (rel. Apr. 28, 1997).

[2/] *See* Letter from Edwin N. Lavergne to Clay Pendarvis, Feb. 23, 1996 (attached).

problems conforming its system to the FCC's rules, some of which were not even in effect when PACE filed its application.[3/]

I. Background

PACE is a cooperative project involving the Michigan Department of Education, the Cheboygan-Otsego-Presque Isle Intermediate School District (COPISD), the Charlevoix-Emmett Intermediate School District, North Central Michigan College, and 20 constituent school districts in Northern Michigan. The area is rural, isolated, and sparsely populated, and has traditionally been under-served in many academic disciplines. PACE uses its ITFS facilities to provide full-time educational and instructional programming to approximately 20,000 students in the area. PACE has no present plans to enter into arrangements with any wireless cable provider.

PACE has developed an innovative plan for the efficient use of ITFS channel capacity in its service area. Through careful spectrum planning, PACE plans to establish a wireless digital network using ITFS frequencies, which will provide fast and efficient communications within and among local school districts, and provide the schools with much needed connections to the Internet. The plan will provide both dramatic cost savings and a quantum leap in educational benefits for thousands of Michigan students. The proposed system will interconnect the schools of its member school districts through a system of point-to-multipoint ITFS stations, effectively creating a wide-area network for the transmission of Internet content and locally originated information among the schools.

[3/] *See Request for Declaratory Ruling on the Use of Digital Modulation by Multipoint Distribution Service and Instructional Television Fixed Service Stations, Declaratory Ruling and Order*, FCC 96-304, DA 95-1854 (rel. July 10, 1996) (*Digital Declaratory Ruling*) (imposing restrictions on digital modulation techniques).

II. The Commission Should Adopt the Petition's Proposals Regarding the Use of Alternative Digital Modulation Techniques.

In addition to permitting the kinds of two-way uses that PACE has proposed, the *Petition* would also permit the use of *any* digital modulation technique, so long as the technique is fully described and the bandwidth is no wider than is needed to provide the intended service.[4/] Certainly this would include modulation techniques other than those approved in the *Digital Declaratory Ruling*. Whether or not the Commission acts upon the other changes advocated in the *Petition*, it should immediately grant ITFS and MDS licensees the flexibility to use whatever digital modulation techniques best meet the licensees' needs, with co-channel and adjacent channel interference controlled through the use of power spectral density limits and emission masks.[5/]

PACE's proposal, in particular, specifies the use of frequency-shift keying (FSK) modulation. FSK may provide significant advantages over quadrature amplitude modulation (QAM) and vestigial sideband (VSB) modulation, the only techniques presently approved by the Commission. FSK is a simpler modulation technique, permitting the design of efficient, economical transmitters and receivers. For example, PACE has proposed to replace its existing Comwave transmitters, which cost over $30,000 each, with digital transmitters employing FSK modulation at a cost of approximately $3,500 each. These savings are so substantial that they

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[4/] *See Petition* at 33, 42 (proposed Section 74,936(a)), and 44 (explanatory note).

[5/] *See Petition*, Exhibit D, at 6 ("it is imperative that flexibility be accorded system operators in the selection of modulation methods, bandwidth, and other charateristics, so long as prescribed interference protection is maintained for spectrum neighbors"); *id.* at 13 ("interference will not be increased by the additional forms of transmission proposed herein").

may make the difference between a system that PACE's school districts can afford and one they cannot.

III. The Commission Must Ensure that Revisions to the ITFS Rules Continue to Protect the Special Needs of the Educational Community.

The *Petition* has the potential to provide a cost-effective solution to the problem of linking schools and classrooms to the global information infrastructure in a rural setting where the distances between schools is great and traditional telecommunications facilities are unavailable or prohibitively expensive. PACE urges the Commission to consider ways to help facilitate the development of the types of innovative systems PACE hopes to create for Michigan students. However, the Commission must proceed cautiously in evaluating the extremely complex proposals contained in the *Petition*, which would radically alter the ITFS and MDS landscape.

PACE urges the Commission to make its first priority the preservation of the primary educational purpose of ITFS. The Commission has stated that "the clear and guiding principle [in its ITFS decisions] is that the primary purpose of ITFS was at its founding and remains to serve formal academic needs."[6/] When the Commission decided to permit ITFS licensees to lease their excess capacity to non-ITFS entities, it still presumed that ITFS channels were "obtained, [and] primarily utilized for, satisfying a legitimate ITFS requirement," and refused to permit "any wholesale abandonment of the primary purpose [of ITFS]."[7/]

[6/] *Amendment of Part 74 of the Commission's Rules and Regulations In Regard to the Instructional Television Fixed Service, Second Report and Order*, 101 F.C.C.2d 50, 80 (1985).

[7/] *Amendment of Parts 2, 21, 74, and 94 of the Commission's Rules and Regulations in Regard to Frequency Allocation to the Instructional Television Fixed Service, the Multipoint* (continued...)

The *Petition* is driven by the need for wireless cable operators to compete in the wireless cable marketplace.[8/] However, the success of wireless cable must not be permitted to take precedence over the educational needs of ITFS licensees. In denying an earlier proposal of the Wireless Communications Association to make wireless cable more remunerative, the Commission stated:

> Although [the proposal] would inarguably utilize ITFS spectrum to benefit educational institutions financially, that is not the purpose of the ITFS allocation. This portion of the scarce radio spectrum was allocated to enhance educational programs by providing space for radio transmission of educational materials.[9/]

This principle, which clearly places educational needs over financial benefits, should continue to guide the Commission in its evaluation of the *Petition*.

The Commission must also ensure that ITFS licensees retain the autonomy to control decisions over the use of their channels. Currently, the Commission's review of ITFS leases places "primary emphasis" on the licensees' control.[10/] This emphasis on control derives from the primary purpose of ITFS to meet the nation's educational needs.

The *Petition* proposes a massive shift away from the present system of government oversight towards industry control over the timing, filing, and resolution of ITFS applica-

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[7/](...continued)
Distribution Service, and the Private Operational Fixed Service, *Report and Order*, 94 F.C.C.2d 1203, 1252-53 (1983).

[8/] *See Petition* at 11 ("if wireless cable operators are to survive in the multichannel video programming marketplace, they too must be able to provide a competitive array of interactive communications services").

[9/] *Amendment of Parts 21, 43, 74, 78, and 94 of the Commission's Rules Governing Use of the Frequencies in the 2.1 and 2.5 GHz Bands*, *Report and Order*, 5 FCC Rcd 6410 at ¶ 36 (1990).

[10/] *Second Report and Order*, *supra*, 101 F.C.C.2d at 90.

tions.[11] The *Petition* places substantial reliance on good faith negotiations between neighboring licensees and between licensees and wireless cable operators.[12] However, the Commission must ensure that individual licensees do not lose their freedom of choice through coercion by neighboring licensees or strong wireless cable operators.

Moreover, the *Petition* would, by its own terms, increase the burden on ITFS licensees to monitor and evaluate ITFS and MDS filings.[13] School districts such as those PACE serves do not have the technical or legal resources to replace the Commission as the primary guardian of their rights. While the *Petition* caters to those well-financed entities who can afford to "take the time to properly engineer applications . . . to initiate service more rapidly,"[14] it is the neighboring licensees, who may not have the same resources, who stand to bear the ultimate burden of this rush to market.

Licensee control must not become an illusory promise. If the government's oversight role is to be lessened, it will be more important than ever to ensure that each ITFS licensee retains the freedom to develop its system in the manner that best suits its educational needs, and is not excessively burdened by technical and legal requirements.

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[11] *See Petition* at 38 (licensees will "no longer rely solely on the Commission's staff to identify potential interference").

[12] *See Petition* at 34 ("neighboring licensees will usually negotiate in good faith"); *id.* at 36 ("deter the filing of frivolous petitions to deny").

[13] *Petition* at 38.

[14] *Petition* at 38.

IV. Conclusion

The Commission should allow the use of FSK modulation as well as QAM and VSB on MDS and ITFS frequencies because of the great cost savings it can bring to ITFS licensees. However, the Commission should proceed with caution in making wholesale changes to the ITFS rules to ensure that ITFS does not lose its unique educational character.

Respectfully submitted,

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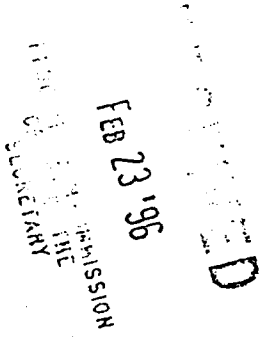
*NOT ADMITTED IN D.C.

February 23, 1996



BY HAND DELIVERY

Mr. Clay Pendarvis
Chief, Television Branch
Mass Media Bureau
Federal Communications Commission
1919 M Street NW, Room 702
Washington, DC 20554

Dear Mr. Pendarvis:

As a follow-up to our meeting last week, the PACE Telecommunications Consortium (PACE), through its attorneys, hereby requests Special Temporary Authorization (STA) to construct and operate an interactive distance learning system using digital modulation over the twenty (20) Instructional Television Fixed Service (ITFS) channels (and their associated response channels) which are available for use in PACE's area. The Commission has the authority to grant this request pursuant to Sections 74.910, 73.3542, and 73.1635 of its Rules.

I. SUMMARY

PACE has developed an innovative plan for the efficient use of ITFS channel capacity in an isolated six-county area in northern Michigan. Specifically, PACE plans to equip selected remote sites with single-channel originating audio/video studios which can be used for both program origination and classroom monitoring. Through careful spectrum planning, PACE also plans to establish a wireless digital wide-area network using ITFS frequencies which will provide fast and efficient communications within and among local school districts, and provide the schools with much needed connections to the Internet. The plan, described in full detail below, will provide both dramatic cost savings and a quantum leap in educational benefits for thousands of Michigan students.

PACE's ultimate objective is to equip approximately 20 receive sites with originating studios consistent with available channel capacity. To this end, PACE intends to apply in the next ITFS filing window for permanent licenses, together with necessary rule waivers, for all of the available ITFS channels in its service area.[1] In the interim, PACE requests an STA so that it may purchase and take delivery of video transmitter and receiver systems, demonstrate the feasibility of its system, and begin to implement the system for the benefit of local schools and surrounding communities.

II. BACKGROUND

PACE is a cooperative project involving the Michigan Department of Education, the Cheboygan-Otsego-Presque Isle Intermediate School District (COPISD), the Charlevoix-Emmett Intermediate School District, North Central Michigan College, and 20 constituent school districts in Northern Michigan. Significantly, every educational authority within PACE's six-county service area is a member of the PACE consortium; and, for the past ten years, PACE has operated an ITFS network providing educational programming to approximately 20,000 students in this area. The area is rural, isolated, and sparsely populated, and has traditionally been under-served in many academic disciplines. PACE also transmits programming of general interest, professional development, and community awareness into the homes of 16,000 cable subscribers.

At present, PACE operates three ITFS transmitters: an originating station at Indian River (operating on channels A1, A3, and A4), an originating station in Charlevoix (operating on channel A2 and transmitting from Charlevoix to all the remote sites except for those that are receiving off of the A Group), and a repeater station at Bear Creek (operating on the C Group). (See attached Figure 1.) These transmitters give PACE coverage over all 20 school districts and North Central Michigan College. Each receive site is equipped with a video receiver and voice response transmitter. The Indian River receive sites transmit directly back to Indian River. The Bear Creek response channels are combined and transmitted back to Indian River. This enables PACE to offer a limited system of interactive distance learning with one-way video and two-way audio.

PACE provides 24-hour educational and instructional programming, all locally originated. From 8 A.M. to 6 P.M. PACE transmits live and recorded educational programming for grades

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[1] As discussed more fully below, pending the outcome of the MDS auctions currently under way, PACE may also request a waiver to use MDS channels in the E and F Groups.

K-12; from 6 P.M. to 9 P.M. PACE provides live and recorded college and graduate school programming; and from 9 P.M. through the evening and early morning hours PACE transmits prerecorded programs of school and community interest. PACE makes use of all of its licensed channel capacity for educational purposes and has no plans to enter into any commercial lease agreement.

Although the present ITFS system has been extremely successful, and has enabled PACE to provide a wide range of high-quality instruction that would have been difficult or impossible without ITFS, its limitations are presently holding PACE back from fully realizing its goals. PACE wishes to expand the system to support two-way interactive video and audio, with program origination capabilities at selected remote sites. The proposed system will reach to the limits of present technology, and include, along with two-way video, a high-speed digital computer network with access to the Internet. Yet the system will be efficient and economical, and will open the door to new kinds of programming that are not currently feasible. A few of the most important benefits of the proposed system are described below.

A. Greater Availability of Instructors

Under the proposed system, remote sites in all school districts will be capable of originating programming that can be transmitted throughout the area. Instructors can be drawn from anywhere in the entire six-county area, and need travel only to the nearest originating studio. The schools will realize dramatic savings in travel time and expenses. Downtime will be minimized because while one studio is on the air another studio can be preparing for the next instruction session.

This will remove one of the major limitations of PACE's present system which has only two originating studios at Charlevoix and Indian River. Even though the present system covers a large geographic area, the availability of instructors is effectively limited to those living near one of these sites. The proposed system, on the other hand, will have a much larger pool of available instructors at a much lower cost.

B. Improved Supervision of Classroom Activities

The proposed system will improve educators' ability to monitor and supervise students during instruction and examinations. Because of Department of Education rules, the present system requires that a proctor be present in any classroom in which there are more than six students. Having two-way video in the classroom will eliminate the need for on-site proctors because the instructors will be able to see the students in each classroom. Instructors will also

be able to pick up visual cues from students' facial expressions and body language, permitting them to tailor instruction to the students' progress.

Interactive video will also produce economies in test administration and homework correction by eliminating the need for proctors in the classroom during examinations. Under the present system, tests must be coordinated with all of the schools involved to ensure that a proctor is present in each classroom. Students must FAX their homework to the studio, a costly and time-consuming process. Under the proposed system, tests can be administered at any time, permitting more spontaneity and flexibility in the testing process. Also, students can answer exam questions as homework is being corrected during class time.

C. Addition of Teleconferencing Capability

The proposed system can be used for teleconferencing, not only in the schools themselves -- for teachers' meetings and student councils -- but also in the community as a whole. For example, Chambers of Commerce will be able to hold their annual meetings over the system, sharing information verbally and visually. The new system will enable other forms of instruction (such as emergency medical training) which require video feedback.

D. Addition of a Wide-Area Network

The proposed system will include a high-speed digital data network operating among the individual remote stations. This network will facilitate school administration by allowing the rapid exchange of information at all times, alleviating the current heavy reliance on long-distance telephone calls. The network will also provide schools with connections to the Internet, libraries, and information systems world-wide, which brings extraordinary opportunities to students in this rural setting.

E. Substantial Cost Savings over Present Equipment

PACE is working with Emhiser Research of Verdi, Nevada to design and develop new digital ITFS transmitting equipment. As discussed below, PACE and Emhiser will apply for type acceptance of the transmitters as soon as prototypes are available for that purpose. Although this equipment is custom-made, PACE will realize enormous cost savings over the Comwave NTSC analog transmitters that it presently uses. The Comwave transmitters installed at PACE's main studio cost PACE over $30,000 each, while the equivalent Emhiser transmitters will cost approximately $3,500. These savings are so substantial that they may make the difference between a system that the school districts can afford and one that they can not.

III. DESCRIPTION OF PROPOSED OPERATION

The operation of the proposed system is illustrated in the attached Figure 2. Each receive site will continue to receive its programming as it does under the present system, on either the A group from Indian River or the C group from Bear Creek. In addition, each remote site will be licensed to transmit on one new ITFS channel, drawn from the currently unused B, D, and G groups. (One site, Charlevoix, is already licensed on channel A2.) This will give each site full two-way simultaneous audio and video capability, which can be used both for instructional feedback and for program origination. Each site will be equipped with a directional antenna for transmission; those sites that receive programming from Indian River will transmit back to Indian River, while those that receive from Bear Creek will transmit back to Bear Creek. The Bear Creek tower will be equipped with an omnidirectional receive antenna instead of the directional antenna on which it currently receives the A group from Indian River.

PACE plans to construct the entire system to use digital frequency shift keying (FSK) modulation.[2] Digital modulation provides a number of significant advantages over analog modulation. First, it greatly increases the available channel capacity through the use of data compression techniques. Second, it permits the transmission of data simultaneously with the audio and video programming. Third, it permits programming to be addressed and sent to specific receive sites only, which allows programming to be specifically targeted where it is needed and also allows the construction of a flexible videoconferencing system. Finally, as mentioned above, digital modulation lowers equipment costs by nearly a factor of 10.

PACE will make use of the data transmission capability provided by digital modulation in a novel and innovative way. Each receive site will be equipped with a local-area computer network and interface unit, and the interface units will be interconnected into a wide-area network using available bandwidth within PACE's ITFS spectrum allocation to form the network links. This will permit continuous operation of the computer network for school administration and provide the schools with connections to the Internet.

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[2] Specifically, PACE proposes to use emission designator F9W. See 47 C.F.R. § 2.201.

IV. NECESSITY FOR THE REQUESTED STA

The 20 K-12 school districts served by PACE can make full use of the 20 available ITFS and MDS channels in the B, D, E, F, and G groups. During the eight years PACE has been in existence, there has not been any interest on the part of any other educational group to make use of the remaining ITFS channels. They are fallow ground, and PACE's proposed system is the best way to turn them to productive and efficient use.[3]

An STA to operate on the sixteen unused ITFS channels operating as described below -- together with authority to use digital modulation on these and the eight channels for which PACE is already licensed -- will be sufficient for PACE to purchase and install equipment, test its operation, and begin to serve the needs of the local community. Without an STA, the system may never get off the ground because PACE's spending authority is conditioned upon its ability to demonstrate a viable and beneficial system. In order to obtain local area project funding, PACE must demonstrate the feasibility of the proposed system; and in order to effect that demonstration, PACE requires the Commission's authorization to operate. In addition, grant of the STA at this time will permit PACE to realize immediate cost savings and begin to provide the kinds of educational opportunities for which the system is designed.

A. PACE Has an Immediate Need for Temporary Operating Authority

PACE plans to file an application for the proposed system, including requests for the rule waivers discussed below, in the next filing window. The Commission last opened a window in October, 1995; the next filing opportunity will likely occur in late 1996. However, PACE has an immediate need for temporary operating authority so that it can demonstrate the viability of this system.

Working with Emhiser, PACE has developed a timeline for equipment fabrication, testing and delivery. (See attached Figure 3.) PACE personnel plan to test prototype transmitter operations at Emhiser facilities in March, 1996. Emhiser is prepared to ship final prototypes to Michigan in April, 1996.

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[3] The FCC is currently holding an auction for the MDS channels, including the E and F groups shared with ITFS. PACE is aware of bidding activity on the BTAs within its coverage area (Traverse City, B446; Petoskey, B345; Alpena, B011; Sault Ste. Marie, B409). PACE does not intend to seek authority to operate on those channels pending the auction outcome.

As soon as the first transmitters are in operation, PACE will realize a number of immediate benefits. First, PACE can begin immediately to realize cost savings by replacing its telephone connections to the Internet with wireless digital links, and permitting administrative services such as facsimile transmissions to be accomplished at significant reductions in cost. Second, PACE can begin immediately to alleviate discipline problems at the remote receive sites by adding the capability to monitor classroom activity through remote video origination facilities. Finally, instructors can begin immediately to take advantage of nearby video origination studios rather than travel to PACE's main studio, a time-consuming and often prohibitively distant commute.

B. Special Authorization Required

The proposed plan is inconsistent with the Commission's Rules in two respects: it requires more than four originating ITFS channels, and it uses digital rather than analog NTSC transmission. PACE will file formal waiver requests with the Commission in conjunction with its application for a full system in the next ITFS filing window. For the reasons described below, we believe there is ample justification to grant the waivers. In the interim, PACE requests an STA to operate at variance with these rules. Because of the geographic isolation of PACE's coverage area, it is extremely unlikely that any licensing conflicts or undesirable interference would be created.

1. **Four-Channel Rule**

The four-channel rule limits ITFS licensees to no more than four channels within a 20-mile radius, and prohibits "warehousing" of channel capacity.[4] The purpose of this rule is to promote diversity and to avoid monopolization of the available spectrum by one entity.[5] This purpose is furthered by the diversity of PACE's membership, representing all of the educators and communities in the region who have combined forces in order to bring high quality programming to their constituencies.

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[4] 47 C.F.R. § 74.902(d)(1).

[5] See Amendment to Part 74 of the Commission's Rules and Regulations in regard to the Instructional Television Fixed Service, Memorandum Opinion and Order, 57 R.R.2d 1166 at ¶ 10 (1985).

As a consortium of independent entities with combined resources, PACE makes available educational opportunities that would not otherwise be possible for its single members. By licensing the transmitters to individual school districts, and carefully placing the transmitters within the large geographical area, complete coverage could likely be accomplished without violating the four-channel rule at all. However, such an arrangement would greatly complicate the coordination of the system and add unnecessary administrative burdens. Permitting PACE to be the sole licensee accomplishes the same goals in a more efficient and straightforward manner. It makes little sense to require compliance pro forma with the rule, when all of the school districts and educators have already indicated their desire to coordinate their educational activities through PACE.

2. NTSC Analog Transmission Standards

PACE has commissioned Emhiser to design and develop digital transmitters for PACE's proposed operations. PACE and Emhiser plan to apply immediately upon development of operational units for type acceptance with the Commission. In the interim, PACE requests that the Commission grant the present request to operate at variance with Section 74.938 of its Rules (requiring the use of type accepted equipment).

There is widespread industry support for the use of digital modulation by ITFS licensees. In a petition for declaratory ruling filed with the Commission on July 13, 1995, a group of nearly one hundred wireless cable industry members and educators requested that the Commission interpret its rules to permit digital modulation by ITFS licensees subject to certain noninterference guarantees.[6] The petition recognized that certain of the Commission's rules could be interpreted in such a way as to frustrate the use of digital modulation. However, through minor technical waivers and strict preservation of the Commission's co-channel and adjacent channel interference criteria, ITFS licensees could employ digital modulation to further both their own interests and the Commission's goals with respect to ITFS.[7]

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[6] Request for Declaratory Ruling on the Use of Digital Modulation by Multipoint Distribution Service and Instructional Television Fixed Service Stations, DA 95-1854 (August 23, 1995).

[7] Waivers or clarifications are required for the following rules: Section 74.936(a) (specifying the "normal" ITFS emission masks) to authorize emission mask F9W for digital modulation; Section 74.936(b) (requiring a certain attenuation for out-of-band signals); Section 74.951(f) insofar as it prohibits operating at less than authorized power; Section 74.950

But PACE's case is even stronger than the pending petition, because of PACE's remoteness and isolation. The Commission's technical rules were adopted to avoid interference among neighboring ITFS licensees. PACE can assure the Commission that its transmissions will not interfere with any neighboring systems. First, PACE is geographically isolated; the nearest neighboring ITFS transmitter is more than 180 miles distant, and no nearby applications are pending. This geographic isolation makes it extremely unlikely that any change in its modulation could even be detected at any other transmit or receive site. Second, PACE pledges to work to resolve any interference complaints that may arise with co-channel and adjacent channel ITFS licensees. Finally, although PACE's use of digital modulation could affect potential adjacent channel MDS operators, we believe that any interference concerns can be resolved between the parties.[8]

C. Grant of PACE's Request is in the Public Interest and Furthers the Commission's Policy Goals for Wireless Cable

Approval of this STA is in the public interest. Digital technology and increased channel capacity will bring new educational opportunities to Michigan students, enable full-time access to national and global information services, and thereby further the Commission's and the government's stated goals for education and wireless cable.[9]

(requirements for analog transmission equipment); Section 74.961 (frequency tolerance with respect to visual carrier); Section 74.970 (modulation limits); and Section 74.935(d) (aural power limitation).

[8] The MDS channels in PACE's coverage area are currently unused, although as noted above there is bidding activity on these BTAs in the MDS auction. It is likely, however, that any MDS operators will also wish to use digital modulation. See Amendment of Parts 21 and 74 of the Commission's Rules With Regard to Filing Procedures in the Multipoint Distribution Service and in the Instructional Television Fixed Service, 10 FCC Rcd 9569 (1995) at ¶ 5 (MDS rules facilitate transition of wireless cable industry to digital transmission); Digital Modulation Petition at 6-7 (describing benefits of digital transmission for MDS).

[9] See Report to Congress, 9 FCC Rcd at 7488 ("the use of digital compression is expected to alleviate wireless cable's channel capacity problem in the near future"). Chairman Hundt has stressed the need to permit digital use of the wireless spectrum. Remarks of Chairman Reed Hundt before the Wertheim-Schroder Variety Conference (April 4, 1995).

GINSBURG, FELDMAN AND BRESS
CHARTERED

V. CONCLUSION

For the foregoing reasons, PACE requests an STA to (i) operate on the currently unused B Group, D Group and G Group ITFS channels and associated ITFS response channels pending the Commission's consideration of a four-channel waiver; and (ii) operate on the A Group, B Group, C Group, D Group, and G Group ITFS channels and associated ITFS response channels at variance with the Commission's Rules to the extent required for digital modulation.

Sincerely yours,

Edwin N. Lavergne
J. Thomas Nolan

Counsel to PACE

In December 1995, the Advisory Council on the National Information Infrastructure recommended that the public schools be connected to the Internet. The panel pointed out the great benefits to the country from such interconnection and noted the problems rural school districts face in obtaining interconnection. PACE's system presents the Commission with the unique opportunity to further this goal; the benefits will be tremendous and the cost very small indeed.

AREA SERVED

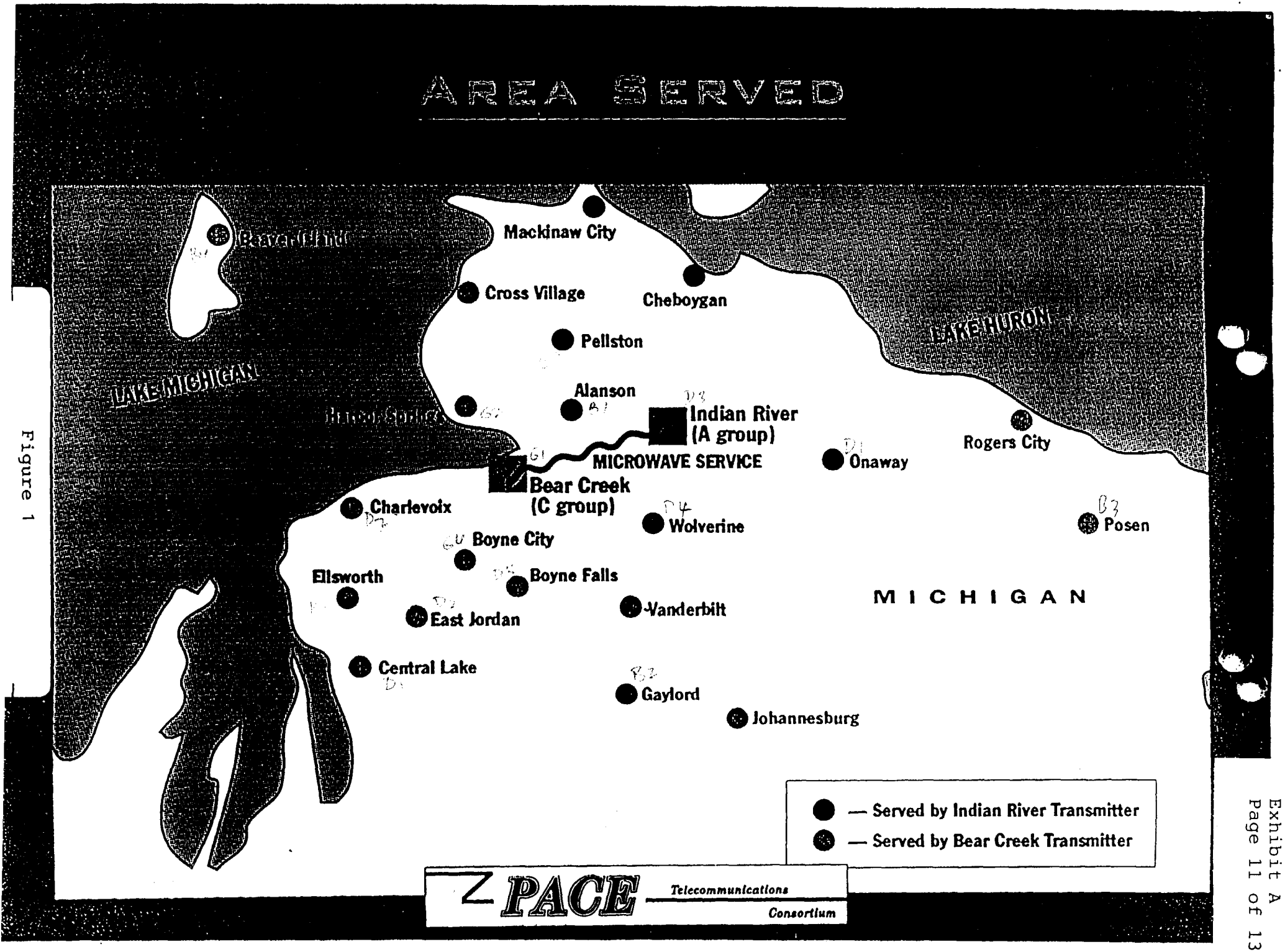
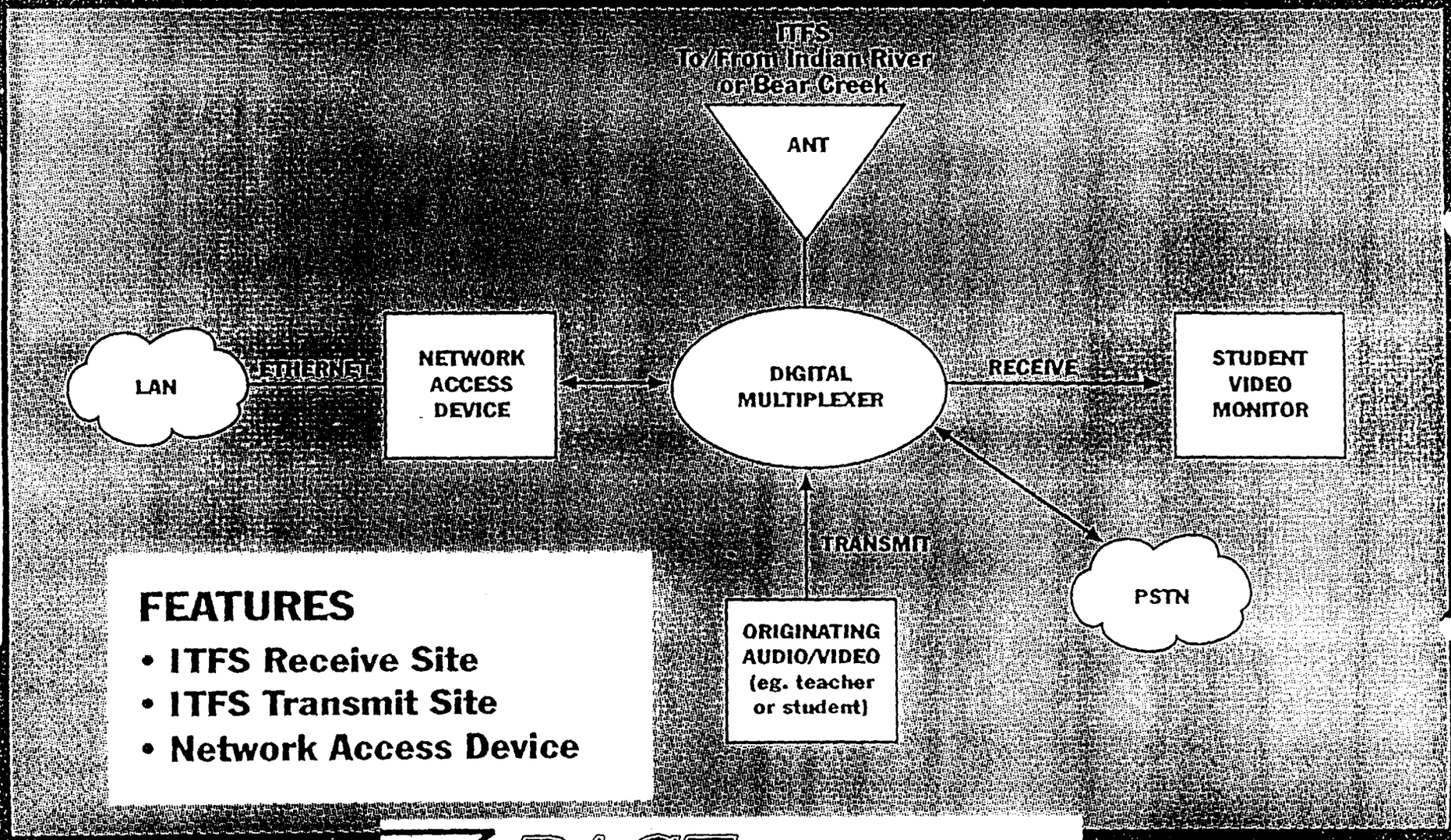


Figure 1

TYPICAL PROPOSED REMOTE SITE



FEATURES

- ITFS Receive Site
- ITFS Transmit Site
- Network Access Device

Z PACE Telecommunications Consortium

Figure 2